

unaccusative) or **active** (unergative), and occasionally **ambiguous** between more than one reading.

[2] The ability of a verb in to derive a nominal is a reflection of its underlying structure: **active** verbs are most likely to nominalize; **passives** are least likely to do so, with **unaccusatives** being non-uniform, some nominalize but others don't.

- We take the following two properties of **active** verbs in niXYaZ to allow the high rate of nominalization:
 - The existence of an **agentive external argument**.
 - The fact that active verbs in niXYaZ take an **obligatory PP complement**.
- **Non-active verbs** pose a challenge: unaccusatives and passives share syntactic structure, namely one which lacks an external argument. Nonetheless, the former group nominalizes to a higher extent than the latter.
- We suggest that the nominalization difference between unaccusatives and passives must boil down then to different **semantics** – passives having an implicit argument which unaccusatives lack.
- But we are left with the question as to **why** passives should be disfavoured on this ground, especially in light of theories that draw an analogy between nominalization and passivization (Alexiadou 2017, to appear; Borer 2013; Bruening 2013; Grimshaw 1990).

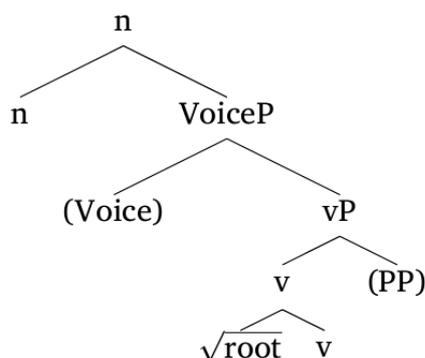
Section 1 – Voice and nominalization

Our focus is on **Process/Event nominals**, which show eventive semantics, as well as the ability to take arguments (Alexiadou 2001; Borer 2013; Grimshaw 1990, amongst others).

Event nouns should also allow adverbial modification (aspectual, manner, place, time) agentive modification and license *by*-phrases, should not pluralize, and accept only a definite article (Grimshaw 1990 and subsequent literature).

➤ **The derivation of nominals**

Works on event nominals associate them with the following structure:



(After Bruening 2013:31)

- The question of external arguments/Voice is under debate, with many studies taking *-tion* nominals to lack Voice (or have a non-projected Voice), while others claim Voice is projected.
- A central view in the study of nominalizations takes Nominalization to be akin to passivization (Alexiadou 2001, 2017, to appear; Borer 2013; Bruening 2013; Grimshaw 1990):
 - A nominalized verb **lacks an external argument**: as in the passivized verb, this argument is not projected in the syntax, and is existentially-quantified over when not explicitly realized via an adjunct (Alexiadou, 2017, to appear; Roeper 1987).
 - In both nominals and passive verbs, the **by-phrase is structurally an adjunct** of the Voice layer (Bruening 2013).
 - But: Bruening (2013), Sichel (2009, 2010) – nominals have a null projected argument, PRO).
- But what about the input to nominalization?

A complementary issue we would like to discuss is the possibility of there being restrictions on the **input** to nominalizations:

- Does nominalization favour some verbal structures over others?
- Very little literature (if any). Nonetheless, two opposing views could be formulated:

i. Nominalizations **require** the base verb to have an external argument
Grimshaw (1990:112):

“If nominalization and passivization suppress the external argument of a base verb, it follows that only verbs with external arguments will undergo these processes”.

ii. Alexiadou (to appear): no such restriction is posited, see also Imanishi (2014).
It is actually the opposite:

“In the absence of VoiceP, no passivisation process as such takes place, the unaccusativity requirement is satisfied as the external argument is not projected”.

- Focusing on variation based on **transitivity** (Voice), do all verbal constructions nominalize to the same extent? If **not**,
- Are verbs that do not have an external argument privileged compared to ones that do, as might be expected in light of works which take nominals to be unaccusative?
- How do passive verbs fare, considering proposals which draw an analogy between nominalization and passivization, such as those in Grimshaw, Alexiadou and Bruening?

The overt morphology of Hebrew allows us to test these claims directly, by virtue of having **distinct marking for different Voice values** (active, Middle, passive) in both the verbal and nominal domains.

Section 2 – Syntactic subgrouping of verbs in niXYaZ

- First, a note on **Semitic morphology** and the way it can help shed light on the interaction of Voice and nominalization:

- The Hebrew verbal system is comprised of seven morphological forms, each with its own inflection paradigm (so-called *templates*).
- These different forms are usually claimed to (amongst others) **explicitly mark transitivity distinctions** (Arad 2006, Doron 2003 a.o).
- All five non-passive verbal forms also have a **designated nominal form**, morpho-phonologically related to it.
- This means: Voice distinctions in Hebrew are retained in the nominal domain.
 - Which is not the case for nominalized verbs in most other languages (English, Greek, German, Romance to name a few).

- In this study, we focus on the **niXYaZ** class, traditionally seen as a class of **medio-passive** verbs.
- Our main claim: **the syntax of verbs hosted in niXYaZ is non-uniform, and the different syntactic structures correlate with the rate of nominalization.**

Verb subgroups in niXYaZ

- Literature on the Hebrew verbal system usually associates niXYaZ verbs with a **non-active** structure: unaccusative, passive or both (*medio-passive*, Alexiadou and Doron 2012).

• NON-ACTIVE STRUCTURES IN niXYaZ	
i. <u>Unaccusative</u>	<i>nifbar</i> 'broke' <i>nigmar</i> 'ended'
ii. <u>Passive</u>	<i>ne'exal (al jedej)</i> 'be eaten (by)'
iii. <u>"Medio-passive"</u> [Unaccusative/passive]	<i>nisgar (me-/al jedej)</i> 'closed (from/by)'

- A relatively small subgroup of verbs in niXYaZ are **unergatives**.
- This group has yet to be addressed in the Hebrew verbal system literature.
- We claim that group iv. verbs:
 - Unlike other subgroups in niXYaZ: have an external argument.
 - Unlike classic unergatives: require a PP complement.

• ACTIVE STRUCTURES IN niXYaZ		
iv. <u>Unergative</u>	<i>ne'evak</i> *(be-/im) 'wrestle, struggle (with)' <i>nimlat</i> *(me-) 'escape (from)' <i>nixnas</i> *(le-) 'entered (into)'	
• AMBIGUOUS VERBS		
1. Unergative/unaccusative	<i>nitma</i> (be-) 'to assimilate (in)'	
2. Unergative/passive	<i>nidxaf</i> (le-) 'to push oneself (into)/be pushed (by)'	
3. Unerg/unacc/passive	<i>nigrar</i> (axar) 'trail (after)/drag/be dragged (by)'	
4. Unaccusative/passive (Medio-passive, see iii. above)	<i>nisgar</i> (me-/al jedej) 'closed (from/by)'	

Diagnosics

- Unergativity: compatibility with various agent-oriented adverbs (Alexiadou et al. 2015, a.o, and Kastner 2017 for Hebrew).
- Unaccusativity: compatibility with 'by itself' (see appendix1).
- Hebrew unaccusativity diagnostics: availability of Verb-Subject inversion and possessive datives (see appendix1).

DIAGNOSTIC	UNACC	UNERG	PASSIVE
AGENT-ORIENTED ADVERBS	-	+	+
'BY ITSELF'	+	-	-
VERB-SUBJECT INVERSION	+	-	?+
POSSESSIVE DATIVES	+	-	+

- Agent oriented adverbs

Non-active structures (unacc, pass, medio-pass):

- Agent-oriented adverbs: incompatible.

(4) **ha-tsamid nijbar be-mejomanut*
 the-bracelet broke.MID in-skill
 (int. 'The bracelet was dismantled skilfully')

- incompatible with *by*-phrases, which would otherwise refer to an agent:

(5) **ha-tsamid nijbar al jedejha-tsoref*
 the-bracelet broke.MID by the-jeweller
 (int. 'The bracelet was dismantled by the jeweller')

Active structure (unergative)

- Agent-oriented adverbs are possible:

(6) *eliana nixnesa l-a-kita be-bitaxon*
 Eliana entered.MID.3SG.F to-the-classroom in-confidence
 'Eliana confidently entered the classroom.'

➤ Verb-subject inversion

Modern Hebrew is typically SV(O), but promoted subjects may appear after the verb, resulting in VS order. This is the case for unaccusatives, presumably because the underlying object remains in its original VP-internal position.

Unergatives do not allow VS, with the exception of a marked structure referred to as "stylistic inversion" (7)^{b2}.

(7) a. *nafl-u jalof kosot be-smone ba-boker* **unacc**
 fell.MID-3PL three glasses in-eight in.the-morning
 'Three glasses fell at 8am'.

b. *#nimletu flofa asirim me-ha-kele be-smone ba-boker* **#unerg**
 escaped.MID-3PL three prisoners from-prison in-eight in.the-morning
 'And thence escaped three prisoners from prison at 8am'. (Marked variant)

Diagnostics suggest the existence of structural differences between verbs sharing the same (Middle/non-active) morphological marking. Hence, the template itself is not a morpho-syntactic primitive.

These differences are represented in our analysis of active vs. non-active structures below.

² For additional discussion see Shlonsky (1987), to whom the test is attributed, as well as Shlonsky and Doron (1991), Borer (1995) and Preminger (2009) for other aspects.

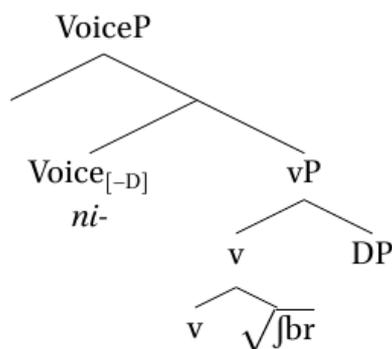
Analysis of the verbal structures in niXYaZ

- Recap of puzzle: both actives and non-active structures are represented in the language with one form, niXYaZ.
- We associate the two types of verbs with different syntax:
Non-active: [-D] feature on Voice, (8).
Active: [+D] feature on Voice + extra structure (obligatory PP), (9).

(8) **NON-ACTIVE STRUCTURES** (Unaccusative/passive/medio-passive)

Schäfer (2008); “marked anticausatives” in Alexiadou et al. (2015); Kastner (2016, 2017)

unaccusative verb *nifbar* ‘broke’:



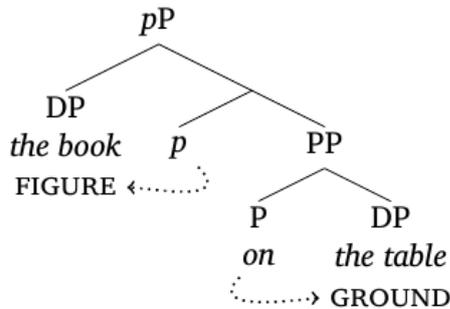
- The Voice head introduces external arguments in a syntactic approach to morphology (Halle and Marantz 1993; Kratzer 1996; Pylkkänen 2008).
- A minus value for the [D] feature means a ban on a DP merging in the specifier of Voice.
- Lack of external argument does **not** imply lack of Voice head, but can be enforced via a [-D] feature.
 - **Passives and medio-passives:** (groups ii., iii.)
- NiXYaZ functions as the house for many passive alternates of one of the active templates in the verbal system.
- The structure in (8) is thus compatible with passive readings as well: on a par with Greek non-active morphology (Alexiadou and Doron 2012; Alexiadou et al. 2015)
 - o The structure in (8) allows for ambiguity, which is precisely what we see with medio-passives in Hebrew³.

³ Unlike Greek, Hebrew has two templates designated and restricted to passive verbs. See Section 4.

(9) **ACTIVE STRUCTURES** (unergative)

Generally, we analyse PPs as combining with “little p”, the head licensing **prepositions** (van Riemsdijk 1990; Rooryck 1996; Koopman 1997; Gehrke 2008; Den Dikken 2003, 2010; Wood 2014).

The **Figure/Ground** roles associated with prepositional relations (Wood 2014): analogous to the relations between the Agent and the complement of V (in accordance).



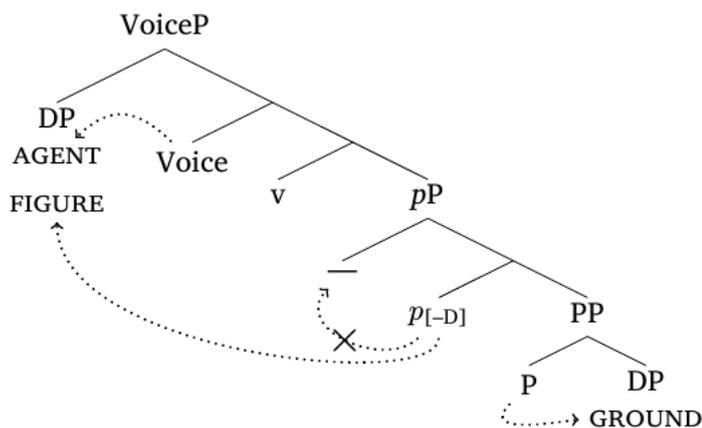
unergative verb *nixnas le-* ‘entered’

- (10) *oren nixnas la-xeder*
 Oren entered to.the-room
 ‘Oren entered the room’.

➤ We refer to unergatives in niXYaZ as “**Figure Reflexives**”, following Wood (2014), due to reflexive, Figure-like interpretation of the PP complements, e.g.

(10’) *Oren_{FIGURE} entered HIMSELF_{REFLEXIVE} INTO the room.*

- PP denotes an **extra participant in the event or path/goal information**.
- **[-D] feature** on the head **p**: prohibits a DP from appearing in its specifier, in analogy to $\text{Voice}_{[-D]}$ (see appendix2).
 - Instead: the subjectless predicate **p** undergoes what is termed “**late saturation**” (Kastner 2017 following Wood 2015, “delayed gratification” in Myler 2014).
 - The external argument serves as the predicate’s subject in interpretation:



Two major differences compared to non-active structures (8):

- Unergatives/figure reflexives are more complex by virtue of selecting a PP argument.
- Presence of an agentive external argument.

As we now show, the analysis above may serve us in understanding better another phenomenon, nominalization patterns.

Section 3 – Nominals in niXYaZ

We conducted a comprehensive study of 415 **verbs** in niXYaZ (based on a verb database by Ehrenfeld 2012; Itai and Wintner 2008).

- Checked for number of verbs that produce an event noun
- Table depicts the proportion of verbs that nominalize in each of the subgroups introduced above.

STRUCTURE	PASS	UNACC	FIGURE REFL	EXAMPLE	NOMINALS/ VERBS PER SUBGROUP	%
NON-ACT	a	+	-	<i>ne'exal</i> 'be eaten (by)'	7/172	4%
	b	+	+	<i>nisraf</i> 'burn/be burned (by)'	11/78	14%
	c	-	+	<i>nigmar</i> 'ended'	25/91	27%
ACTIVE	d	-	+	<i>neevak be-</i> 'wrestled'	19/32	59%
AMBIGUOUS	e	-	+	<i>nitsmad (le-)</i> 'attached'	12/17	71%
	f	+	-	<i>nitla</i> 'hanged on/be hanged (by)'	12/15	80%
	g	+	+	<i>niftax</i> 'open up/get/be opened (by)'	10/10	100%

- Generalization: Passives nominalize the least, unaccusatives nominalize to a higher extent, and finally with the highest rate of nominalization stand Figure reflexives.

Non-ambiguous verbs: examples

(11) a. unergative:

- i. *ne'evak (be-)* 'fight s.o'
he'avkut (be-) 'fighting s.o'
- ii. *ne'exaz (be-)* 'hold on to'
he'axzut (be-) 'holding on to'

b. unaccusative:

- i. *nolad* 'be born'
hivaldut 'being born'
- ii. *nifmat* 'be dropped'
**hifamtut* 'being dropped'

c. passive:

- i. *nikba* 'be set by'
**hikab'ut* 'being set by'
- ii. *nixat* 'be blackmailed/squeezed by'
**hisaxtut* 'being blackmailed/squeezed by'

➤ Same tendency found with verbs that exhibit more than one reading:

(12) passive < unaccusative < unergative

➤ Proportion of nominalization per each type of atomic structure/readings: unaccusative, unergative or passive:

READING	NOMINALS PER READING/ VERBS PER READING	%
Passive	9/275	3%
Unaccusative	56/196	29%
<u>Unergative</u>	38/74	51%

- Between active and non-active readings, it is usually the former that is retained in the nominal.
- Between unaccusative and passive, it is usually the unaccusative (see Siloni and Preminger 2009 for similar observations):

Ambiguous verbs: examples

(13) Mediopassive:

- a. *ha-uga* *nim'exa* *b-a-tik* **unacc**
the-cake got.squished.MID in-the-bag
'The cake got squished in the bag'.
- b. *ha-psolet* *nim'exa* *al jedej* *ha-mexona* **passive**
the-waste got.squashed.MID by the-machine
'The waste was squished using a machine'.

(14) a. *ha-hima'axut fel ha-uga b-a-tik he'eciva oti unacc*
 the-squishing.MID of the-cake in-the-bag saddened me
 'The cake getting squished in the bag made me sad'.

b. **ha-hima'axut fel ha-psolet al jedejha-mexona *passive*
 the-squashing.MID of the-waste by the-machine
tov-a l-a-sviva
 is.good-3SG.F to-the- environment
 'The squashing of the waste using a machine is helping the environment'.

(15) Unergative/passive verbs:

a. *hu nidxaf le-kol makom unerg*
 he push.MID to-all place
 'He is pushing his way everywhere'.

b. *ha-hidaxfut jelo le-kol makom 'icbena otanu passive*
 the-pushing.MID his to-all place annoyed-3SG.F us
 'That he pushes his way everywhere annoyed us'.

(16) a. *hu nidxaf al jedej ha-foded unerg*
 he got.pushed.MID by the-robber
 'He got pushed by the robber'.

b. **ha-hidaxfut jelo al jedej ha-foded garma lo *passive*
 the-getting.pushed.MID his by the-robber caused to-him
le-pci'a
 to-injury
 [Int. meaning: 'That he got pushed by the robber caused him to get injured'].

In our analysis is on the right track, the existence of contrasts between verbs in niXYaZ is less surprising: morphology is identical, so it is the variation in the underlying **structures** that is responsible for the nominalization behaviour.

Next section: a discussion of these findings, followed by a comparison against the current theoretical views on argument structure, Voice and nominalization.

Section 4 – discussion of the findings

- Hebrew data from niXYaZ: a quantitative difference in nominalization between active and non-active verbs.
 - Results suggest that **active structures are privileged** with regard to the ability to produce an event nominal.

I. First factor presumably enabling nominalization: event complexity

- NiXYaZ figure reflexives **select for PP complements**:

[1] more complex than regular unergatives, [2] more complex than unaccusatives/passives.

Grimshaw: unergatives **shouldn't** produce event nominals, as they are **mono-eventive**⁴.

This is indeed the case with zero derived nominals based on unergatives (cf. Myers' Generalization; Pesetsky 1995):

- (17) a. The/Eliana's walk/dance/run/spin/sleep (*for two hours).
b. The *frequent/*deliberate walk/dance/run.
c. *The walk/dance/run by Oren and Eliana.
d. A/the walk, many walks along the river, half a dance.

- **Figure Reflexives**, however, are more complex than simple unergatives. PP complements usually provide goal/path information or an added participant

II. Second factor: the precise nature of the external argument

External argument in figure reflexives, as in many unergatives, is an **agent**.

Nominalizations shown to **favour agentive arguments** over causer arguments (18).

A phenomena termed "Agent Exclusivity" Grimshaw (1990), Harley and Noyer (2000), Iwata (1995), Lakoff (1970), Marantz (1997), Pesetsky (1995), Sichel (2010):

- (18) a. The cold war/The Allies separated East and West Germany.
b. #The cold war's separation of East and West Germany.
c. The Allies' separation of East and West Germany.
d. The separation of East and West Germany by The Allies.
e. The separation of East and West Germany ??by the cold war.

(Adapted from Harley and Noyer, 2000: (14b))

- ➔ On a par with clauses headed by simple **transitives** taking an agent, **unergatives** are in this sense a good candidate for nominalization.

⁴ Some morphologically complex nominalizations of unergatives seem to also go counter Grimshaw's view (Pross 2014):

- [i] The constant radiation of the caesium.
- [ii] The constant hibernation of the bear.
- [iii] The hibernation of the bear for one year.

A preliminary survey of over 200 unergatives hosted in three different templates in Hebrew shows that unergatives with no PP argument in the language may also nominalize. We leave these findings for future research.

To summarize, event complexity and agentivity may then account for the privileged status of figure reflexives over unaccusatives and passives in the rate of nominalization.

➤ **What about Voice_[-D] ?**

Our results: unaccusatives nominalize to a higher extent than passives, (12).

Challenge: Unaccusatives and passives share structure, namely show a [-D] feature on Voice (8)

- If nominalization cares about the external argument of the underlying verb: unaccusatives should be as bad as passives.
- Gap cannot be accounted for resorting to nominalization's sensitivity to the syntactic external argument (or to Voice and its features).
- The explanation could only be based on **semantic** grounds:
 - The property setting the two readings apart must be in the **interpretation**.
 - Voice head with a [-D] feature yields two different interpretations in niXYaZ; unaccusative or passive (thematic vs expletive Voice in Alexiadou et al 2015, or contextual alloosemy of Voice in Kastner 2016:71):

(19) Two possible representation of Voice_[-D] head:

$[[\text{Voice}_{[-D]}]]$ = $\lambda e \exists x. e$ & Agent(x,e) / { ν_{axl} 'eat', ν_{kba} 'set', ...}
= $\lambda P.P$ (elsewhere)

➤ **And what about non-ambiguous passives in Hebrew?**

Unlike Greek, Hebrew has two templates **designated** and restricted to passive verbs.

Differ from passives in niXYaZ: claimed to represent a passive **head** (Doron 2003, Alexiadou and Doron 2012, Kastner and Zu 2017).

- These passive templates lack a nominal derivative altogether, and are the only two out of seven templates to not nominalize (Kastner and Zu 2017).

➔ Passive verbs are ruled out as an input to nominalization regardless of the template they are in⁵.

➔ If indeed nominalization is akin to passivization, or if nominalization should in principle be felicitous with verb bases lacking an external argument, then our findings are unexpected.

⁵With regards to unambiguous passives, in the two designated passive templates, it could be claimed that the presence of a passive head blocks nominalization.

➤ **Open questions for the analysis:**

- i. Nominalization disfavours verbal bases with existential closure (i.e. passives). Why?
- ii. Understanding why unaccusatives are not particularly good (does not depend on the lexical semantics of the root as far as we can tell)⁶.

Section 5: Conclusions

- In this talk, we addressed nominalization from a perspective that has not been commonly discussed in the literature: the connection between the nature of the verbal **input** and the availability of an event noun.
- Through a case study of nominalizations of one class of intransitive verbs in **Hebrew**, we examined the type of input that can serve as a base for the derivation of an event nominal.
- We found that **unergatives** produce nominalizations to a larger extent than do **unaccusatives** in this class, while **passives** overwhelmingly fail to derive a nominal.
- We claimed that unergatives, by virtue of their **event complexity**, brought about by the added PP, and by virtue of having an (agentive) **external argument**, nominalize the easiest. Unaccusatives and passives, lacking an external argument, suggest that nominalization disfavour structures with a Voice feature that bans the projection of an external argument.
- Finally, we addressed the contrast between unaccusatives and passives, both lacking a syntactically projected external argument, but differing from each other with regards to their semantics, with only the latter group having implicit arguments in the interpretation. We discussed two open questions from our analysis:
 - i. Understanding why passives are bad with regards to nominalization, and
 - ii. Why unaccusatives nominalize to a lesser extent than unergatives in this template, in light of claims that nominalizations **must** lack an external argument. (Alexiadou 2017, to appear; Imanishi 2014).

⁶ Note that unaccusatives in niXYaZ nominalize to a larger extent than do passives, but less than unergatives, and more crucially, less than unaccusatives in other templates in the language. Some examples are:

[i] “Simple” template (Doron 2003): *nafal* ‘to fall’, *nefila* ‘falling down’, *kamal* ‘to wither’, *kmila* ‘withering’.

[ii] “Intensive” Middle template: *hitgafem* ‘come true, materialize’, *hitgafmut* ‘coming true, materializing’,

hit’ada ‘vaporized’, *hit’adut* ‘vaporization’.

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Appendix1

➤ Unaccusativity/unergativity diagnostics in Hebrew

The **possessive dative**: a construction in which the possessor appears in a prepositional phrase in a separate constituent from the possessee (possessor raising). This construction is taken to be unique to internal arguments in the language (Borer and Grodzinsky 1986).

A transitive construction is compatible with the possessive dative, (1)a, as is a non-active construction in niXYaZ, (1)b, whereas an unergative verb leads to an affected interpretation of the kind discussed by Ariel et. Al (2015) and Bar-Asher Siegal and Boneh 2016, (1)c.

(1) a. *dana favra l-i et ha-faon* Internal Argument
 Dana broke.ACT to-me ACC the-watch
 'Dana broke my watch.'

b. *nifbar l-i ha-faon*
 broke.MID to-me the-watch
 'My watch broke.'

c. *#jilel-u l-i flofet ha-xatulim* *External argument
 whined.aCT-3PL to-me three the-cats
 'The three cats whined and I was adversely affected.' (int. 'My three cats whined')

Figure reflexives fail the accepted unaccusativity diagnostics, unlike non-active verbs, VS order is unavailable, again being grammatical but resulting in “stylistic inversion”:

(2) *#nixnes-u jalof xajal-ot la-kita*
 entered.MID-3PL three soldiers-F.PL to.the-classroom

(int. 'Three soldiers entered the classroom.')

The possessive dative is likewise incompatible with figure reflexives; example (3) is infelicitous on a reading where the cat is the speaker's.

- (3) #*ha-xatul nixnas l-i la-xeder (kol ha-zman), ma laasot?*
the-cat enters.MID to-me to.the-room (all the-time) what to.do
(int. 'My cat keeps coming into into my room, what should I do?')

➤ Adverbial modifier 'By itself'

Unergatives: 'by itself' is not possible:

- (20) **eliana nixnesa l-a-kita me-atma*
Eliana entered.MID.3SG.F to-the-classroom from-itself

Unaccusatives: 'by itself' is possible:

- (21) *ha-kise nijbar me-atmo*
the-chair broke.MID from-itself
'The chair fell apart (of its own accord)'.

Appendix2

We have assumed that Voice_[-D] and p_[-D] are spelled out the same, or trigger the same morpho-phonological processes. Unless anything additional is said, this similarity remains an accident. It has recently been proposed by (Wood and Marantz 2017) that heads such as Voice, Appl and p are in fact contextual variants of the same functional head, which they call *i**.

On their view - which we will not explore in detail here - "Voice" is simply the name we give to *i** which takes a vP complement, "high Appl" is the name we give to *i** which takes a vP complement and is in turn embedded in a higher *i** (itself being Voice), "p" is the name we give to an *i** which takes a PP complement, and so on.